

New Claims 15 to 32

This listing of claims will replace all prior versions, and listings, of claims in the application:

15. A packaging tape adhesive composition for cardboard box sealing tapes, comprising:

- a. a linear tetrablock copolymer S-I-S-I', obtainable by full sequential polymerization of predominantly styrene and of predominantly isoprene respectively, having an apparent molecular weight in the range of from 205,000 to 225,000, and wherein both predominantly poly(styrene) blocks have an apparent molecular weight of from 10,000 to 12,000, wherein the intermediate S-I diblock copolymer has an apparent molecular weight in the range of from 130,000 to 185,000, wherein the intermediate S-I-S triblock copolymer has an apparent molecular weight in the range of from 145,000 to 195,000, and wherein the poly(styrene) content is in the range of from 14 to 16 wt%;
- b. at least one tackifying resin in an amount of from 50 to 150 parts by weight per 100 parts by weight of block copolymers;
- c. optionally a naphtenic oil or paraffinic oil in an amount of from 0 to 50 parts by weight per 100 parts by weight of block copolymers; and
- d. optionally an antioxidant and/or other auxiliaries, which when present is/are present in an amount from 0.1 to 10 parts by weight per 100 parts by weight of block copolymer.

16. The packaging tape adhesive composition of claim 15, wherein the block copolymer is composed of substantially pure poly(styrene) homopolymer blocks and of substantially pure poly(isoprene) homopolymer blocks.

17. The packaging tape adhesive composition of claim 15, wherein the molecular weight of the block I is significantly greater than that one of I'.

18. The packaging tape adhesive composition of claim 15, wherein the styrene content varies from 14.5 to 15.5 wt%.

19. The packaging tape adhesive composition of claim 17, wherein the styrene content is about 15.0 wt%.

20. The packaging tape adhesive composition of claim 15, wherein the apparent molecular weight of the complete tetrablock copolymer is in the range of from 210,000 to 217,000.

21. The packaging tape adhesive composition of claim 15, wherein the tetrablock comprises predominantly poly(isoprene) blocks I, having a molecular weight of from 124,000 to 175,000 as calculated from the apparent molecular weights measured after the first and second consecutive polymerization steps.

22. The packaging tape adhesive composition of claim 15, wherein the tetrablock comprises predominantly poly(isoprene) blocks I, having a molecular weight of from 125,000 to 172,000 as calculated from the apparent molecular weights measured after the first and second consecutive polymerization steps.

23. The packaging tape adhesive composition of claim 15, wherein the tetrablock copolymers comprise terminal predominantly poly(isoprene) blocks I', having a molecular weight of from 20,000 to 65,000 as calculated from the apparent molecular weight measured after the consecutive third and fourth polymerization steps.

24. The packaging tape adhesive composition of claim 22, wherein the tetrablock copolymers comprise terminal predominantly poly(isoprene) blocks I', having a molecular weight of from 20,000 to 65,000 and most preferably from 22,000 to 64,000, as calculated from the apparent molecular weight measured after the consecutive third and fourth polymerization steps.

25. Packaging tapes for cardboard sealing comprising an adhesive composition that comprises:

a. a linear tetrablock copolymer S-I-S-I', obtainable by full sequential polymerization of predominantly styrene and of predominantly isoprene respectively, having an apparent molecular weight in the range of from 205,000 to 225,000, and

wherein both predominantly poly(styrene) blocks have an apparent molecular weight of from 10,000 to 12,000, wherein the intermediate S-I diblock copolymer has an apparent molecular weight in the range of from 130,000 to 185,000, wherein the intermediate S-I-S triblock copolymer has an apparent molecular weight in the range of from 145,000 to 195,000, and wherein the poly(styrene) content is in the range of from 14 to 16 wt%;

- b. at least one tackifying resin in an amount of from 50 to 150 parts by weight per 100 parts by weight of block copolymers;
- c. optionally a naphthenic oil or paraffinic oil in an amount of from 0 to 50 parts by weight per 100 parts by weight of block copolymers; and
- d. optionally an antioxidant and/or other auxiliaries, in an amount from 0.1 to 10 parts by weight per 100 parts by weight of block copolymer.

26. Linear tetrablock copolymers S-I-S-I' for the manufacture of packaging tape adhesive compositions for cardboard box sealing, obtainable by full sequential polymerization of predominantly styrene and of predominantly isoprene respectively, having an apparent molecular weight in the range of from 205,000 to 225,000 and wherein both predominantly poly(styrene) blocks have an apparent molecular weight of from 10,000 to 12,000, wherein the intermediate S-I diblock copolymer has an apparent molecular weight in the range of from 130,000 to 185,000, wherein the intermediate S-I-S triblock copolymer has an apparent molecular weight in the range of from 145,000 to 195,000, and wherein the poly(styrene) content is in the range of from 14 to 16 wt%.

27. The linear tetrablock copolymers of claim 26, wherein the molecular weight of the block I is significantly greater than that one of I'.

28. The linear tetrablock copolymers of claim 26, wherein the styrene content varies from 14.5 to 15.5 wt%.

29. The linear tetrablock copolymers of claim 27, wherein the styrene content varies from 14.5 to 15.5 wt%.

30. The linear tetrablock copolymers of claim 26, wherein the apparent molecular weight of the complete tetrablock copolymer is in the range of from 210,000 to 217,000.

31. The linear tetrablock copolymers of claim 26, wherein the tetrablock comprises predominantly poly(isoprene) blocks I, having a molecular weight of from 124,000 to 175,000, as calculated from the apparent molecular weights measured after the first and second consecutive polymerization steps.

32. A process for the manufacture of pellets, comprising an adhesive composition for packaging tapes for sealing cardboard boxes comprising:

a) adding to an extruder

i. a linear tetrablock copolymer, obtainable by full sequential polymerization of substantially pure styrene and of substantially pure isoprene respectively, having an apparent molecular weight in the range of from 205,000 to 225,000, and wherein both substantially pure poly(styrene) blocks have an apparent molecular weight of from 10,000 to 12,000, wherein the intermediate S-I diblock copolymer has an apparent molecular weight in the range of from 130,000 to 185,000; wherein the intermediate S-I-S triblock copolymer has an apparent molecular weight in the range of from 145,000 to 195,000; wherein the poly(styrene) content is in the range of from 14 to 16 wt%,

ii. at least one tackifying resin in an amount of from 50 to 150 parts by weight per 100 parts by weight of block copolymers,

iii. optionally a naphtenic oil or paraffinic oil in an amount of from 0 to 50 parts by weight per 100 parts by weight of block copolymers, and

iv. optionally an antioxidant and/or other auxiliaries, which when present is present in an amount from 0.1 to 10 parts by weight per 100 parts by weight of block copolymers.

v. optionally an antifoaming agent and/or a detergent which when present is present in an amount of from 500 to 5000 ppm, relative to the weight of the composition,

b) blending and extruding the components in the extruder to obtain an extrudate,

c) pelletizing the extrudate with an underwater pelletizer to obtain wet pellets, and

d) drying the wet pellets to obtain pellets containing the adhesive composition and optionally treating the wet or dry pellets with a dusting agent in an amount of from 0.05 to 10% by weight of the total adhesive composition.

Applicants respectfully request consideration of newly added claims 15 to 32.

Respectfully submitted,

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